

which one is lateral and, beginning close under the humeral prominence, extends in a nearly straight line to the external apical angle; the second, just above this, is very feeble, soon disappears, and seems to be a continuation of the humeral prominence; the third is placed about a millimetre higher up than the first and almost on the edge of the disk; along the inner side of this carina is a row of punctures, between it and the middle carina is a second row of larger and more distant punctures, while just beneath the first or lateral carina, near the middle of its length, is a short row of very small punctures. In *S. nigricornis* the arrangement of the carinae and punctures is somewhat the same, but the lowermost or lateral carina of each side is less prominent, especially anteriorly; the median carina is much more distinct and is plainly seen to be a continuation of the humeral prominence; while the third or discal carina is much feebler. The punctures too are much fewer in number and placed more widely apart; but in this respect *S. nigricornis* is subject to vary. In the type specimen of Fabricius there are only four or five punctures in each row, while in other specimens twice this number is reached. In *S. nigricornis* the legs and underside of the body are generally greyish; in the present species they are distinctly fulvous, with the tarsi on their upperside and the abdomen and breast partly black.

From Mr. Thomson's too short diagnosis of *S. lateralis* I am quite unable to determine his species. It is from N. India. The species just described may possibly be the same or a variety of it.

EXPLANATION OF PLATE VII.

- Fig. 1. *Xylotrechus Hampsoni*.
 Fig. 2. *Batocera Polli*.
 Fig. 3. *Coptops quadrimaculata*.
 Fig. 4. *Thylactus dorsalis*.
 Fig. 5. *Rhodopis alboplagiata*.
 Fig. 6. *Sthenias albicollis*.
 Fig. 7. *Enispia cleroides*.
 Fig. 8. *Pemptolasius humeralis*.

VIII.—Note on *Tealia tuberculata* and *T. crassicornis*.

By G. Y. and A. F. DIXON.

IN a paper published in the 'Journal of the Marine Biological Association' (vol. i. p. 205) Mr. J. T. Cunningham endeavours to set up *Tealia tuberculata* (Cocks) as a species distinct from *Tealia crassicornis* (Müller). Perhaps we may be

allowed to point out some matters that have occurred to us and which prevent our accepting his conclusions. There would appear to be no doubt whatever that Mr. Cunningham has obtained specimens identical with that on which Cocks based the description of his species *T. tuberculata*; but it seems to us that the accurate and detailed description which he gives of them leaves almost no room for question that these specimens belong to Gosse's species *T. crassicornis*. The points on which Mr. Cunningham separates *T. tuberculata* from *T. crassicornis* are:— (1) the occurrence of irregularly branched or bifurcated tentacles, which, so far as he is aware, have been observed only in *T. tuberculata*, though he admits that this is not a constant character of the species; (2) the slight irregularities in the number and arrangement of the tentacles which were exhibited by all the specimens of *T. tuberculata* which he examined, the conjectured normal arrangement being 5, 5, 10, 20, 40, 80; (3) he also states that *T. crassicornis* may be provisionally distinguished by the number of the tentacles, which are always arranged 5, 5, 10, 20, 40, while *T. tuberculata* possesses the ideal number given above; (4) he points out that in *T. tuberculata* the tubercles on the column are arranged in vertical series, while Gosse states that those of *T. crassicornis* are irregularly scattered.

These distinctions seem to us insufficient to separate the species in question. In the first place the occurrence of branched or bifurcated tentacles is not limited to any one species of Actinia. We have observed this phenomenon occurring occasionally in *Actinoloba dianthus*, *Sagartia miniata*, *Actinia equina*, *Anthea cereus*, *Bunodes gemmacea*, *Peachia hastata*, and more frequently in *Cylista undata*; but the most conspicuous instance of this peculiarity we have ever met with was in a large specimen of *T. crassicornis* adhering to an oyster-shell, and obtained from deep water in Dublin Bay in January last. In this specimen several of the tentacles were abnormally developed with warts or branches. Gosse considered the tendency of the tentacles to a monstrous fission the most marked peculiarity of Cocks's specimen; Mr. Cunningham admits that this tendency is not exhibited by some individuals otherwise similar to Cocks's specimen, and we see that it may be present in *T. crassicornis*, the very species from which it is desired to separate some individuals on the ground that they possess this peculiarity. Secondly, as to the irregularity in the tentacles observed by Mr. Cunningham, we should not be inclined to lay much stress on this point in the case of individuals so

large as those which he describes. He himself shows that the normal arrangement corresponds with that in *T. crassicornis* so far as the latter goes, and that the irregularity in *T. tuberculata* is due to deficiencies in the outer cycle of the tentacles. Further, it is not uncommon to find in adult individuals of other species of Actiniæ possessing numerous tentacles similar departures from the regular type. Even in *Bunodes verrucosa*, in which, as a rule, the regular arrangement is singularly conspicuous, we have observed a somewhat similar numerical deficiency (Proc. Roy. Dubl. Soc. vol. vi. p. 321). Indeed, in large specimens, one could hardly expect to find the full number of tentacles always present in the outer and, therefore, newer cycles; for to preserve such regularity in growth the tentacles in each cycle should be simultaneously developed, and it should be remembered that such an absolutely symmetrical development of mesenteries as this would suggest is not usually met with among Actiniæ with numerous mesenteries. Mr. Cunningham himself can hardly consider the irregularity in the tentacles to be of specific importance; for were he to do so, to be logical, he should exclude the individuals which he has described as well from the genus *Tealia*, as defined by himself, as from the species *T. crassicornis*. Thirdly, as to the greater number of tentacles observed by Mr. Cunningham in *T. tuberculata* compared with the number assigned by Gosse to *T. crassicornis*, we do not see why this should not be compatible with the identity of the two species. The individuals referred to *T. tuberculata* are evidently larger than those found along the shore between tide-marks, which formed the material on which Gosse based his description of *T. crassicornis*; and it seems reasonable to suppose that the number of tentacles increases with the growth of the animal. Fourthly, as to the tubercles being arranged in vertical rows in *T. tuberculata*, we have shown that the same is the case with *T. crassicornis* (*l. c.* pp. 319, 320). We do not think that the fact that Cocks's and Mr. Cunningham's specimens were attached to the valves of Lamellibranchs, instead of being found in the clefts of rocks, is anything more than a different habit necessarily assumed by the animals in the different regions from which they were obtained. We may add that we have never seen a *T. crassicornis* brought from deep water except on a shell or stone. Mr. Cunningham points out that the surface of the column is almost always bare of pebbles and sand, though furnished with suckers; we have invariably found this to be the case with specimens of *T. crassicornis* dredged in deep water.

From what we have already said it is apparent that we

cannot follow Professor Haddon (Trans. Roy. Dubl. Soc. ser. 2, vol. iv. p. 321) in regarding *Tealia tuberculata* as a possible synonym of *Actinauge Richardi*. Owing to Prof. Haddon's kindness we have had an opportunity of seeing Cocks's original drawing, and we can only state that it is quite possible it was made from a merely overgrown specimen of *T. crassicornis*. While, therefore, as Gosse says, *T. tuberculata* may be a true species (Actin. Brit. p. 217), we must state our belief that as yet its distinctive specific characteristics have not been diagnosed.

Mr. Cunningham arrives at the conclusion that *Bolocera eques*, Gosse, is the same as *Tealia tuberculata*. But it appears a rather high-handed course to ignore totally the non-retractility of the margin, which Gosse made one of the distinguishing features of the genus *Bolocera*, and, in addition, to assume that Gosse is mistaken in the number he assigns to the tentacles. We do not think that such an accurate observer as Gosse can have gone so far astray in a matter of external form.

We cannot conclude without expressing our surprise that Mr. Cunningham has included in the genus *Tealia*, defined by himself as possessing a decimal arrangement of parts, such a form as *T. bunodiformis*, Hertwig, which has been described in the 'Challenger' Report (p. 35) as possessing parts certainly not conforming in number or disposition to this definition. We have elsewhere urged the probable identity of *T. bunodiformis* and *Bunodes thullia*, Gosse (*l. c.* p. 319); but, in any case, it must be widely separate from such a well-defined genus as *Tealia*.

IX.—*Tenth Contribution to the Knowledge of the Fauna of Madagascar* *. By Dr. A. GÜNTHER, F.R.S.

[Plate VI.]

A SMALL collection made by the Rev. James Wills in the forest-district east of Imerina contained a few new or interesting species.

Among the Mammalia there is a specimen of a very peculiarly coloured species of *Hemicentetes*.

Hemicentetes nigrofuscus.

This species agrees with *Hemicentetes semispinosus* in size,

* 9. "Ninth Contribution to the Knowledge of the Fauna of Madagascar," Ann. & Mag. Nat. Hist. 1882, vol. ix. p. 262.